What is claimed is:

1. A method for producing an electronic device comprising the steps of:

a) disposing on a substrate surface a B-staged dielectric matrix composition comprising one or more dielectric matrix materials and a removable porogen;

b) curing the B-staged dielectric matrix composition to form a dielectric matrix material without substantially removing the porogen;

c) patterning the dielectric matrix material;

d) depositing a metal layer on the surface of the dielectric material; and then

e) subjecting the dielectric matrix material to conditions which at least partially remove the porogen to form a porous dielectric material layer without substantially degrading the dielectric material.

2. The method of claim 1 wherein the B-staged dielectric material is selected from one or more of organo polysilicas; carbides, oxides, nitrides and oxyfluorides of silicon, boron, or aluminum; benzocyclobutenes; poly(aryl esters); poly(ether ketones); polycarbonates; poly(arylene ethers); polyaromatic hydrocarbons; poly(perfluorinated hydrocarbons); polyimides; polybenzoxazoles and polycycloolefins.

3. The method of claim 1 wherein the B-staged dielectric material is selected from alkyl silsesquioxanes; aryl silsesquioxanes; alkyl/aryl silsesquioxane mixtures; and mixtures of alkyl silsesquioxanes.

4. The method of claim 1 wherein the metal layer is one or more of barrier layer, seed layer or aperture fill metal layer.

5. The method of claim 1 wherein the removable porogen is substantially compatible with B-staged dielectric material.

6. The method of claim 1 further comprising the step of planarizing the metal layer prior to at least partially removing the porogen.

7. A method for producing an electronic device comprising the steps of:

a) disposing on a substrate surface a B-staged dielectric matrix composition comprising one or more dielectric matrix materials and a removable porogen;

b) curing the B-staged dielectric matrix composition to form a dielectric matrix material without substantially removing the porogen;

c) patterning the dielectric matrix material;

d) depositing at least one of a barrier layer or seed layer on the surface of the dielectric material;

e) depositing an aperture fill metal layer;

f) planarizing the aperture fill metal layer; and then

g) subjecting the dielectric matrix material to conditions which at least partially remove the porogen to form a porous dielectric material layer without substantially degrading the dielectric material.

8. The method of claim 7 wherein the B-staged dielectric material is selected from one or more of organo polysilicas; carbides, oxides, nitrides and oxyfluorides of silicon, boron, or aluminum; benzocyclobutenes; poly(aryl esters); poly(ether ketones); polycarbonates; poly(arylene ethers); polyaromatic hydrocarbons; poly(perfluorinated hydrocarbons); polyimides; polybenzoxazoles and polycycloolefins.

9. The method of claim 7 wherein the aperture fill metal layer comprises copper or copper alloy.

10. The method of claim 7 wherein the removable porogen is substantially compatible with B-staged dielectric material.

11. A method for manufacturing an electronic device comprising the steps of:

a) disposing on a substrate surface a B-staged dielectric matrix composition comprising one or more dielectric matrix materials and a removable porogen;

b) curing the B-staged dielectric matrix composition to form a dielectric matrix material without substantially removing the porogen;

c) patterning the dielectric matrix material;

d) depositing a metal layer on the surface of the dielectric material;

e) subjecting the dielectric matrix material to conditions which at least partially remove the porogen to form a porous dielectric material layer without substantially degrading the dielectric material; and

f) subjecting the porous dielectric layer to subsequent processing steps;

wherein the porous dielectric layer is free of an added cap layer.

12. An electronic device comprising a porous dielectric layer free of an added cap layer.

13. The device of claim 12 wherein the porous dielectric layer is selected from one or more of organo polysilicas; carbides, oxides, nitrides and oxyfluorides of silicon, boron, or aluminum; benzocyclobutenes; poly(aryl esters); poly(ether ketones); polycarbonates; poly(arylene ethers); polyaromatic hydrocarbons; poly(perfluorinated hydrocarbons); polyimides; polybenzoxazoles and polycycloolefins.

14. A method for improving the adhesion of a dielectric material to a porous dielectric material layer comprising the steps of: a) removing porogens from a cured dielectric matrix material after a planarization step to form a porous dielectric material layer; b) disposing on the porous dielectric material layer a B-staged dielectric matrix composition; and c) curing the B-staged dielectric matrix composition to form a dielectric matrix material.